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10/645,086	08/21/2003	John E. Irvine	11314-1110	7298

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EXAMINER

SALDANO, LISA M

ART UNIT	PAPER NUMBER
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3673

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/645,086

Applicant(s)

IRVINE, JOHN E.

Examiner

Lisa M. Saldano

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-26 is/are allowed.
- 6) ☒ Claim(s) 1-5, 9, 13-16, 27-34 and 36 is/are rejected.
- 7) ☒ Claim(s) 6-8, 10-12, 17, 18 and 35 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/24/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cole et al (4,917,543) in view of Okimoto et al (JP-63312413-A).

Cole et al disclose a wall system employing a series of duplicate extruded panel sections 22 wherein the panel section comprise polymeric material such as PVC (polyvinyl chloride, see column 5, lines 15-25). The panels are positioned in edge-to-edge interlocked relationship (see Fig.12). The panels comprise grooves or locking elements 27 on either side for slidably receiving interlocking connecting elements to ultimately connect plural panels adjacent to one another. The panels further include at least first and second strengthening flanges or ribs 65 extending along the length of the panels. The strengthening ribs form a U-shape such that access is available between the strengthening flanges. Fig.1 illustrates the formation of a wall through attachment of adjacent panels, securing a wale member 30 or means for retaining the wall in a fixed position relative to the soils and disposing soil about the means for retaining and between the strengthening flanges (see Figs.1 and 18). The wale members 30 function as anchor sheets that are attached to the strengthening

However, Cole et al fail to disclose that the strengthening panel discloses sidewall sections that are co-planar with the central wall section. They also fail to disclose a male locking element with a female locking element disposed on the sidewall sections of the panels.

Okimoto discloses a sheet pile or structural panel for forming barriers comprising in cross section a central wall section 39, male locking element 41 on a side wall section and a female locking section 44 on the other side wall section (see Fig.3). The male and female sections are configured to allow a structural panel to slidably receive a duplicate structural panel. Okimoto further discloses strengthening flanges 38 (at joints 40a,40b) integrally formed on an inner surface of a central wall section, wherein the flanges are perpendicular to the central wall section and parallel to each other. The strengthening flanges extend from points along the length of the structural panel.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Cole et al to comprise co-planar sidewall and central sections as well as male and female interlocking members because Okimoto clearly discloses that sheet piles may be planar and comprise male and female locking members for slidably interlocking panel members, while fully maintaining their functions as sheet piles for forming wall, piers or dikes. The choice of whether to use planar sections or whether to use male/female interlocking members is really a matter of design choice.

3. Claims 2-5, 9, 13 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cole et al in view of Okimoto et al, as applied to claims 1 and 33 above in further view of Papetti (5,161,917).

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Cole et al and Okimoto disclose the features as described above.

Regarding claim 4, Cole et al disclose that the interlocking portions of the panel 22 do not protrude from the outer surface of the central wall section of the panel (see Fig.9).

However, Cole et al and Okimoto fail to disclose a strengthening member encased in the plastic and shielded from the outside environment.

Papetti disclose a method and element for the production of structures for containing areas of the ground comprising plastic coated double twisted metal mesh, which is perforated, with a hexagonal grid (see column 2, lines 5-15). Papetti disclose that such reinforcing materials are used to contain areas of the ground (see column 1, lines 12-25). Papetti further discloses that the plastic coated mesh is resistant to corrosion (see column 1, lines 20-23).

Regarding claim 5, Papetti discloses that the metal is galvanized (steel, see abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the sheet pile of Cole et al to incorporate double twisted metal mesh coated in the plastic, as taught by Papetti because the metal mesh reinforces the plastic of the sheet pile. The plastic material of the sheet pile provides resistance to corrosion. Furthermore, the construction industry has long embedded metals within other material to reinforce those materials that may be less strong in the tensile component, such as plastic material and concrete materials.

4. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cole et al in view of Okimoto et al and Papetti, as applied to claim 2, above, in further view of Nottingham (US 2002/0054791 A1).

Cole et al, Okimoto et al and Papetti disclose features as described above.

However, Cole et al, Okimoto et al and Papetti fail to disclose a strengthening member of fiberglass.

Nottingham discloses a sheet pile wall earth retaining system. Nottingham discloses that composite material may be used to construct the sheet pile, i.e., formed plastics, extruded plastics, composite metal and plastic, fiberglass, carbon fibers, aluminum and the like (see page 5, paragraph [0059]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the sheet pile of Cole et al or Okimoto et al with the synthetic resin material, such a plastic, and fiberglass composite teachings of Nottingham because both inventions are related to sheet pile systems for use in construction sites. Nottingham teaches that sheet piles may be fabricated from a number of materials. The composite materials disclosed by Nottingham suggest plastic materials in composite form that will withstand severe environmental conditions better than usage of metal materials only.

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wheeler, Jr. et al (6,357,969) in view of Cole et al (4,917,543).

Wheeler, Jr. et al disclose a method of fabricating a groundwater monitoring system and a monitoring system. Wheeler, Jr. et al disclose in-ground barriers comprising sheet piling driven into the ground; typical sheet piling sections are made of steel plates. Wheeler, Jr. et al further disclose that interlocking sections of sheet piling driven into the ground is a popular, cost effective method for installing barrier walls to prevent the movement of soils and limit groundwater migration. They disclose that sheet piling sections with connectors on the side

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edges are installed sequentially by interlocking the connectors of adjoining sheet piling sections to form a continuous barrier.

However, Wheeler, Jr. fails to disclose strengthening flanges.

Cole et al disclose a wall system employing a series of duplicate extruded panel sections 22 wherein the panel section comprise polymeric material such as PVC (polyvinyl chloride, see column 5, lines 15-25). The panels are positioned in edge-to-edge interlocked relationship (see Fig.12). The panels comprise grooves or locking elements 27 on either side for slidably receiving interlocking connecting elements to ultimately connect plural panels adjacent to one another. The panels further include at least first and second parallel and spaced strengthening flanges or ribs 65 extending along the length of the panels. The strengthening ribs provide access between the strengthening flanges. Fig.1 illustrates the formation of a wall through attachment of adjacent panels, securing a wale member 30 or means for retaining the wall in a fixed position relative to the soils and disposing soil about the means for retaining and between the strengthening flanges (see Figs.1 and 18).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Wheeler, Jr. et al to use an interlocking wall system, such as the system of Cole et al, fail to explicitly disclose that the invention comprises a method of installing a driven wall

6. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cole et al (4,917,543) in view of Nottingham (US 2002/0054791).

Cole et al disclose a wall system employing a series of duplicate extruded panel sections wherein the panel section comprise polymeric material such as PVC (polyvinyl chloride, see column 5, lines 15-25). The panels are positioned in edge-to-edge interlocked relationship (see Fig.12).

However, Cole et al fail to disclose that the panels comprise a strengthening sheet.

Nottingham discloses a sheet pile wall earth retaining system. Nottingham discloses that composite material may be used to construct the sheet pile, i.e., formed plastics, extruded plastics, composite metal and plastic, fiberglass, carbon fibers, aluminum and the like (see page 5, paragraph [0059]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the sheet pile of Cole et al made with the synthetic resin material to incorporate the composite teachings of including a plastic and metallic sheet pile, according to the teachings of Nottingham because both inventions are related to sheet pile systems for use in construction sites. Nottingham teaches that sheet piles may be fabricated from a number of materials. The composite materials disclosed by Nottingham suggest plastic materials that withstand severe environmental conditions better than usage of metal materials only. The metal teaching provides a material that is typically stronger than plastics in certain applications, thereby supplementing the material characteristics.

7. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cole et al in view of Nottingham, as applied to claim 27, in further view of Papetti (5,161,917) and Tanaka et al (5,364,682).

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Cole and Nottingham disclose the features mentioned above. Specifically, Nottingham discloses a sheet pile wall earth retaining system. Nottingham discloses that composite material may be used to construct the sheet pile, i.e., formed plastics, extruded plastics, composite metal and plastic, fiberglass, carbon fibers, aluminum and the like (see page 5, paragraph [0059]).

However, Cole and Nottingham fail to disclose a perforated metal sheet in a composite sheet pile.

Papetti disclose a method and element for the production of structures for containing areas of the ground comprising plastic coated double twisted metal mesh, which is perforated, with a hexagonal grid (see column 2, lines 5-15). Papetti disclose that such reinforcing materials are used to contain areas of the ground (see column 1, lines 12-25). Papetti further discloses that the plastic coated mesh is resistant to corrosion (see column 1, lines 20-23). Papetti discloses the plastic coated reinforcing mesh having U-shaped and L-shaped portions that form portions of the ground containing structure (see Figs. 3-5).

Regarding claim 29, Tanaka et al disclose a composite sliding member with an impregnated metal wire mesh member. Tanaka et al disclose expanded metal covered by one or more material from a list of materials including resin (see abstract). Tanaka et al disclose that the metal may be one of aluminum alloy or stainless steel alloy.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the driven sheet pile of Cole et al with the metal and plastic composite teachings of Nottingham because both inventions are related to sheet pile systems for use in construction sites. Nottingham teaches that sheet piles may be fabricated from a number of materials. The

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composite materials disclosed by Nottingham suggest plastic materials that withstand severe environmental conditions better than usage of metal materials only.

It would have been obvious to one of ordinary skill in the art at the time of the invention to twisted metal mesh coated in the plastic, as taught by Papetti and suggested by Nottingham based on disclosure of composite metal and plastic sheet piles, to the sheet pile of Cole et al because the metal mesh reinforces the plastic of the sheet pile. Furthermore, the plastic material of the sheet pile provides resistance to corrosion. Furthermore, it would have been obvious to use a resin covered expanded metal, as suggested by Tanaka et al because Tanaka et al teach that such as material has a low coefficient of friction (see column 1, lines 20-25), which would facilitate insertion of the sheet pile into the ground.

8. Claims 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cole et al in view of Nottingham and Papetti and Tanaka et al, as applied to claims 27 and 28 above, in further view of Golcheh (6,675,547).

Cole et al, Nottingham, Papetti and Tanaka et al disclose the features as described above. Specifically, Cole et al disclose strengthening flanges 65.

However, Cole et al, Nottingham, Papetti and Tanaka et al fail to disclose anchor members.

Golcheh discloses a method for forming a head wall from an anchor pile and reinforcing member for said anchor pile structure wherein the anchor pile modules 2 comprise a rib or strengthening member 24 with apertures or holes 25. Golcheh discloses a transverse bar 31

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engaged through at least one of the holes 25 (see column 7, lines 35-45). Golcheh further discloses backfill reinforcing sheets or elements 5 attached to the anchor bar (see Fig. 9).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of installing sheet pilings of Cole et al to include means for retaining, as taught by Golcheh, because the means enhance the strength and reliability of the sheet piling system by further anchoring it into the soil.

Allowable Subject Matter

9. Claims 19-26 would be allowed over the prior art of record.

10. Claims 6, 7, 8, 10, 11, 12, 17, 18 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

11. Applicant's arguments with respect to claims 1-36 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. The applicant has amended the claims to include limitations that were not previously presented, for example "...said central wall section forming a U-shape with the

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opening of the U-shape facing away from said central wall section such that access is available between the strengthening flanges along the length of the structural panel.”

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lisa M. Saldano whose telephone number is 703-605-1167. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Heather C. Shackelford can be reached on 703-308-2978. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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